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| **Representative TN State Curriculum Standards**  **5th Grade:**  **Grade Level Expectation**  0506.2.5- Develop fluency in solving multi-step problems using whole numbers, fractions, mixed numbers, and decimals.  0506.2.3- Develop fluency with division of whole numbers. Understand the relationship of divisor, dividend, and quotient in terms of multiplication and division.  **Checks for Understanding**  0506.2.2- Use the prime factorization of two whole numbers to determine the greatest common factor and the least common multiple.  **State Performance Indicator**  0506.2.7 Recognize equivalent representations for the same number.  **6th Grade**:  **Grade Level Expectation**  0606.2.1 Understand and explain the procedures for multiplication and division of fractions, mixed numbers, and decimals.  **Check For Understanding**  0606.2.2 Use area models to represent multiplication of fractions.  0606.2.3 Create and solve contextual problems that lead naturally to division of fractions.  **State Performance Indicator**  0606.2.1 Solve problems involving the multiplication and division of fractions.  0606.2.2 Solve problems involving the addition, subtraction, multiplication, and division of mixed numbers.  0606.2.4 Solve multi-step arithmetic problems using fractions, mixed numbers, and decimals. | |
| Math Doesn't Suck: How to Survive Middle School Math Without Losing Your Mind Or Breaking a Nail [Book] | Time: 3-4 minutes to review book/ 12 minutes to do activities  - The teacher will go over the book to show students show students the simple arithmetic that is used to find the answer to multiplication and division of fractions.  - The teacher will model how to use fraction pieces to solve the multiplication and division problems.  - Students will use fraction pieces and counters to model and solve simple multiplication and division problems. |

**Virtual Manipulatives** (Each game can be played as an extension, or during center time. -The games will take approximately 10 minutes to demonstrate.)

* Have students sketch out an example of the 1st VM using 2 different colors of crayons or markers to show their answers
* For the 2nd VM have the students use the smart pals to show how their work.
* For the 3rd VM have students use the smart pals to work through the standard algorithms.

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| **Multiplying Fractions Chart**  [http://nlvm.usu.edu/en/nav/frames\_asid\_194\_g\_2\_t\_1.html?from=topic\_t\_1.html](https://bl2prd0310.outlook.com/owa/redir.aspx?C=DoDesPjPYkKqf747eZ0b1w_ptERfvc4IddaC4GENVj1YhpXuEAmEC8Nba7ECBI8TZ4_-huCe_k4.&URL=http%3a%2f%2fnlvm.usu.edu%2fen%2fnav%2fframes_asid_194_g_2_t_1.html%3ffrom%3dtopic_t_1.html)  **Multiplying & Simplifying Fractions**  <http://www.mathplayground.com/fractions_mult.html>  **Objective**: Answer the question correctly by simplifying the fractions as much as possible. Answering the questions correctly will allow you to gain the most points. |
| **Math Basketball**  <http://www.math-play.com/math-basketball-dividing-fractions-game/math-basketball-dividing-fractions-game.html>  **Objective**: Make the basketball player make the shot and answer the question correctly. Make and answer as many shots in the time given as you can to advance to the next round. |

***Activities from Textbook:***

**Materials needed: Fraction pieces, counters, and Fraction bars**

1. Figure 16.8 Different ways to model multiplication of fractions. Page 319; 7 minutes.
   1. Unit Parts without Subdivisions Multiplication
2. Figure 16.11 Development of the algorithm for multiplication of fractions. Page 320; 5 minutes.
   1. Area Model Multiplication
3. Figure 16.14 Whole Number Divisors of Fractions. Page 322; 5 minutes
   1. Partition Division
4. Figure 16.15 Counting Servings with Cookies. Page 323; 5 minutes
   1. Measurement Interpretation Division

**Lesson Plan:**

Fractional Clothesline

<http://illuminations.nctm.org/LessonDetail.aspx?id=L784>

In this lesson, a string will be stretched across the classroom and various points will be marked for 0, 1, 2, 3, and 4. This classroom number line will be used to show that all proper fractions are grouped between 0 and 1, and that improper fractions or mixed numbers are all grouped above 1. Students clip index cards with various proper fractions, improper fractions, and mixed numbers on the clothesline to visually see groupings. Students then play an estimation game with groups using the same principle. Encouraging students to look at fractions in various ways will help foster their conceptual fraction sense. An expansion of this would be having them have two numbers on our fraction clothes line and multiply and divide them and rotate partners and see how many answers a student can get. This would be a lesson plan that I would use to help introduce the multiplication and division.

Part II. Locate at least one lesson plan on your topic from the suggested resources list. Include the title, a brief synopsis of the plan, and the complete URL to access the plan. If time permits complete a portion of the lesson with the class.

**Note: Include your topic and your name in the header**